

## ABSTRACT

Methods and apparatus for storing and retrieving data using two-dimensional arrays.

In one implementation, a checkerboard buffer page system includes: a data source,

providing data elements in a first order; a data destination, receiving data elements in a

5 second order; memory devices each having memory pages, data elements stored in parallel

to and retrieved in parallel from the memory devices; each buffer page having entries along

a first dimension corresponding to the first order and entries along a second dimension

corresponding to the second order, data elements stored in the first order and retrieved in the

second order, at least one memory page stores data elements in multiple locations according

10 to the first and second orders, at least two data elements consecutive in the first order stored

in parallel, and where at least two data elements consecutive in the second order retrieved in parallel.

10076942-021402